

1. *Clostridium botulinum* will not produce toxin in food at a pH of _____.
a. 4.6 or lower
b. 4.6 or higher
c. 5.6 or lower
d. 5.6 or higher
2. A food scientist measures the color of apples for consistency. Chroma is one of the measurements, which determines _____.
a. how intense the color is
b. if the color is red, blue, or green
c. the lightness or darkness of the color
d. the amount of discoloration
3. This substance provides fizz to soft drinks.
a. Potassium bicarbonate
b. Carbon dioxide
c. Quinine
d. Potassium sulfate
4. The quickest method that a food processor could use for dehydration, especially milk, eggs, and protein powders, is _____ drying.
a. tray
b. drum
c. spray
d. vacuum
5. _____ is a type of ROP.
a. MAP
b. SAP
c. TAP
d. GAP
6. In the food sanitation industry, CIP means which of the following?
a. Critical inspection program
b. Compliance improvement plan
c. Common industrial practice
d. Clean-in-place
7. _____ is an enzyme inhibitor that slows the spoilage process of eggs when it combines with iron to form a stable compound making iron unavailable for microbial growth.
a. Tomatin
b. Lactoferrin
c. Conalbumin
d. Phytic acid
8. Separation processes are used during food production, and _____ is a method based on separation by density.
a. evaporation
b. distillation
c. crystallization
d. creaming
9. When milk curdles to form cheese, a change in the shape of a protein molecule occurs without breaking peptide bonds. This is called _____.
a. oxidation
b. lyophilization
c. denaturation
d. hydrogenation
10. Intermediate moisture foods have moisture levels of _____ with enough dissolved solids to prevent the growth of microbes.
a. 10-30%
b. 20-50%
c. 30-60%
d. 40-70%

11. A _____ is used to determine the cooking time and temperature needed to kill a specific microorganism.
- a. thermal death curve
 - b. bacterial growth curve
 - c. standard growth curve
 - d. Gompertz model
12. A _____ is a misfolded protein believed to be the causative agent of bovine spongiform encephalopathy.
- a. virus
 - b. prion
 - c. rotavirus
 - d. bacterium
13. The FDA regulates about ____ of the U.S. food supply.
- a. 50%
 - b. 60%
 - c. 80%
 - d. 90%
14. _____ is the inadvertent introduction of an allergen into a product, generally resulting from environmental exposure during processing or handling.
- a. Cross-contamination
 - b. Adulteration
 - c. Contamination
 - d. Cross-contact
15. To allow for the expansion of cooking, space left in a container after adding food is called ____.
- a. extra volume
 - b. condensation space
 - c. headspace
 - d. free space
16. _____ involves restoring some of the nutrients to a product that were removed during processing.
- a. Fortification
 - b. Enrichment
 - c. Bioavailability
 - d. Supplementation
17. _____ is an enzyme that breaks down bitter flavor compounds in citrus fruits.
- a. Amyloglucosidase
 - b. Cellulase
 - c. Phytase
 - d. Narginase
18. Food packaging that is _____ means that liquids and/or gases can pass through or penetrate the packaging.
- a. impenetrable
 - b. impervious
 - c. permeable
 - d. hermetic
19. The temperature at which maximum swelling occurs when a liquid is thickened with starch is called the _____ point.
- a. melting
 - b. expansion
 - c. gelatinization
 - d. swelling
20. Which of the following is NOT an example of descriptive research when food scientists are collecting data on a product?
- a. Taste tests
 - b. Measuring product pH
 - c. Written surveys
 - d. Consumer interviews

21. The sharpness of a cheese refers to _____.

- a. its cut ability
- b. its melt ability
- c. the strength of its flavor and aroma
- d. the density of the finished cheese

22. Emulsifiers are commonly used to manufacture mayonnaise. An emulsifier is a molecule that has _____.

- a. a polar and nonpolar end
- b. two polar ends
- c. two nonpolar ends
- d. molecule polarity has no effect on an emulsifier

23. In the United States, a certification process administered by the _____ must be followed before a food can be labeled "organic."

- a. FDA Health and Human Services
- b. USDA Agricultural Marketing Service
- c. USDA Food Safety and Inspection Service
- d. Environmental Protection Agency

24. A yogurt labeled as "strawberry-flavored yogurt" _____.

- a. means the yogurt is flavored with strawberries
- b. means that at least some of the flavor comes from synthetic flavoring agents
- c. means only synthetic flavors were added
- d. it has no specifications beyond it looks and tastes like strawberry

25. Maple syrup is an example of a _____.

- a. heterogeneous mixture
- b. solute
- c. pure substance
- d. homogeneous mixture

26. Gelatin may be added to beer or processed apple juice to chemically bind with _____ so it can be filtered out to remove cloudiness and sediments before bottling.

- a. allyl sulfides
- b. isothiocyanates
- c. tannins
- d. saponins

27. Which of the following is an example of a nutritive sweetener?

- a. acesulfame K
- b. xylitol
- c. sucralose
- d. stevioside

28. The CDC estimates that eggs are involved in about 75% of all _____ outbreaks.

- a. listeriosis
- b. *E. coli* O157:H7
- c. *Staphylococcus aureus*
- d. salmonellosis

29. Having enough food to feed the population is the future, or food sustainability, is an important goal for food scientists. Which of the following would NOT be a food sustainability goal for the food industry?

- a. Throw zero product away
- b. Minimize food waste
- c. Get value added out of food waste
- d. Increase marketing

30. _____ is a process of adding hydrogen ions to an unsaturated lipid to increase its saturation level such as forming margarine from corn oil.
- Saturation
 - Hydrogenation
 - Auto-oxidation
 - Peroxidation
31. _____ is used to concentrate fruit juices with limited use of heat to protect flavor compounds and Vitamin C.
- Distillation
 - Osmosis
 - Reverse osmosis
 - Evaporation
32. A food company manufactures frozen pancakes that are ready-to-reheat and heat and are sold in the frozen food case at retail. To make the pancakes, the company deposits pancake batter on a griddle. Heat is transferred by _____ though this cooking method.
- radiation
 - conduction
 - convection
 - irradiation
33. In a food processing facility, _____ is an extrinsic factor that affects the growth rate of microorganisms.
- water activity
 - oxidation-reduction potential
 - pH
 - temperature
34. Vegetable oil becomes cloudy when refrigerated because some of the triglycerides have a _____ than the temperature in most home refrigerators.
- solidification point that is higher
 - solidification point that is lower
 - saturation point that is higher
 - saturation point that is lower
35. Pumpkin spice is a popular fall flavor marketed in products by many food companies. It is typically a blend of _____.
- cinnamon, anise, ginger, and clove or allspice
 - cinnamon, nutmeg, ginger, and espresso
 - cinnamon, nutmeg, ginger, and clove or allspice
 - cinnamon, nutmeg, lavender, and clove or allspice
36. Glycerol is an example of a(n) _____, that is a food additive used to help retain moisture in products such as soft candies, chewing gum, and confections.
- humectant
 - anticaking agent
 - emulsifier
 - stabilizer

37. The FDA FSMA was signed into law on January 4, 2011. What does FSMA mean?
- a. Food Services Modification Act
 - b. Food Security Management Act
 - c. Federal Safety Maintenance Act
 - d. Food Safety Modernization Act
38. Myoglobin is the _____ protein pigment in muscle tissue that provides the color.
- a. zinc-binding
 - b. niacin-binding
 - c. magnesium-binding
 - d. iron-binding
39. The red color in tomatoes comes from _____, which is a carotenoid.
- a. lutein
 - b. zeaxanthin
 - c. lycopene
 - d. genistein
40. Of the following allergens, which is considered one of the “big eight” allergens?
- a. apples
 - b. coconut
 - c. yams
 - d. mustard seeds
41. USDA FSIS requires that companies must have HACCP plans for _____.
- a. fruit juices
 - b. bread
 - c. Siluriformes fish
 - d. pet foods
42. When corn syrup is made from corn, _____ is the first enzyme used to convert starch into oligosaccharides.
- a. D-xylose
 - b. glucoamylase
 - c. α -amylase
 - d. lactase
43. If a food product is labeled as “calorie free,” it means that the product contains _____.
- a. zero calories
 - b. fewer than 5 calories
 - c. fewer than 10 calories
 - d. fewer than 15 calories
44. To provide consumers with expert knowledge on handling and storing food safely and prevent food poisoning, the USDA FSIS developed _____ that allows consumers to ask questions or participate on a live chat, either online or through a mobile app.
- a. Ask Betty
 - b. Ask Karen
 - c. Ask John
 - d. Ask Pete
45. _____ is an enzymatically controlled change in a food product brought on by the action of microorganisms.
- a. Fermentation
 - b. Hydrogenation
 - c. Extrusion
 - d. Neutralization

46. _____ is the study of the nature of food, the causes of deterioration, the principles underlying food processing, and improvement of foods for the consuming public.
- a. Nutrition
 - b. Home economics
 - c. Sensory analysis
 - d. Food science
47. Umami can alter the perception of tastes, making _____.
- a. sodium less saltier and sugar sweeter
 - b. sour and bitter less acerbic and biting
 - c. sodium more saltier and sugar less sweeter
 - d. sodium less saltier and sugar less sweeter
48. _____ is used as a dough conditioner in the bakery industry, in addition to being a disinfectant in the dairy industry.
- a. Calcium chloride
 - b. Potassium
 - c. Iodine
 - d. Ascorbic acid
49. _____ is a sucrose polyester that looks, feels, and performs like fat, yet provides no calories and passes through the body undigested.
- a. Simplexse
 - b. Olestra
 - c. Trailblazer
 - d. LITA
50. _____ is the measure of the partial water pressure over a food, compared to the vapor pressure over pure water at a given temperature.
- a. pH
 - b. water activity
 - c. water content
 - d. brix